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## ABSTRACT

A novel artificial nucleic acid base pair which is obtained by forming a selective base pair by introducing a group having steric hindrance (preferably a group having steric hindrance and static repulsion and a stacking effect) and can be recognized by a polymerase such as DNA polymerase; a novel artificial gene; and a method of designing nucleic acid bases so as to form a selective base pair with the use of steric hindrance, static repulsion and stacking effect at the base moiety of the nucleic acid. An artificial nucleic acid comprising these bases; a process for producing the same; a codon containing the same; a nucleic acid molecule containing the same; a process for producing a non-natural gene by using the same; a process for producing a novel protein by using the above nucleic acid molecule or non-natural gene, and the like.